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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 200130-0037]

RTID 0648-XG758

Listing Endangered and Threatened Wildlife and Plants; Notice of 12-Month Finding on a Petition to List Summer-Run Steelhead in Northern California as Endangered Under the Endangered Species Act

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of 12-month petition finding.

SUMMARY: We, NMFS, announce a 12-month finding on a petition to delineate Northern California (NC) summer-run steelhead as a distinct population segment (DPS) of West Coast steelhead (*Oncorhynchus mykiss*), and to list that DPS as endangered under the Endangered Species Act (ESA). We have completed a comprehensive DPS analysis of NC summer-run steelhead in response to the petition. Based on the best scientific and commercial data available, including the DPS configuration review report, we have determined that listing NC summer-run steelhead as an endangered DPS is not warranted. We determined that summer-run steelhead in the NC steelhead DPS do not meet the criteria to be considered a DPS separate from winter-run steelhead. We also announce the availability of the DPS configuration review report prepared pursuant to the ESA for the NC steelhead DPS.

DATES: This finding was made on *[insert date of publication in the **FEDERAL REGISTER**]*.

ADDRESSES: The documents informing the 12-month finding, including the DPS configuration report (Pearse *et al.* 2019), are available by submitting a request to the Assistant Regional Administrator, Protected Resources Division, West Coast Regional Office, 501 W. Ocean Blvd, Suite 4200, Long Beach, CA 90802, Attention: NC Summer-run Steelhead 12-month Finding. The documents are also available electronically at <https://www.fisheries.noaa.gov/region/west-coast>.

FOR FURTHER INFORMATION CONTACT: Gary Rule, NMFS West Coast Region at gary.rule@noaa.gov, (503) 230-5424; or Heather Austin, NMFS Office of Protected Resources at heather.austin@noaa.gov, (301) 427-8422.

SUPPLEMENTARY INFORMATION:

Background

On November 15, 2018, the Secretary of Commerce received a petition from the Friends of the Eel River (hereafter, the Petitioner) to list NC summer-run steelhead as an endangered DPS under the ESA. Currently, NC summer-run steelhead are part of the NC steelhead DPS that combines winter-run and summer-run steelhead and is listed as threatened under the ESA (71 FR 833; January 5, 2006). The Petitioner is requesting that NC summer-run steelhead be considered as a separate DPS and listed as endangered. On April 22, 2019, we published a positive 90-day finding (84 FR 16632) announcing that the petition presented substantial scientific or commercial information indicating that the petitioned action may be warranted. In our 90-day finding, we also announced the initiation of a status review of the NC summer-run steelhead and requested information to inform our decision on whether the species warrants listing as threatened or endangered under the ESA.

Listing Species Under the ESA

We are responsible for determining whether species under our jurisdiction are threatened or endangered under the ESA (16 U.S.C. 1531 *et seq.*). To make this determination, we first consider whether a group of organisms constitutes a “species” under section 3 of the ESA (16 U.S.C. 1532), and then, if so, consider whether the status of the species qualifies it for listing as either threatened or endangered. Section 3 of the ESA defines species to include any subspecies of fish or wildlife or plants, and any DPS of any species of vertebrate fish or wildlife which interbreeds when mature. On February 7, 1996, NMFS and the U.S. Fish and Wildlife Service (USFWS; together, the Services) adopted the Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act, a policy describing what constitutes a DPS of a taxonomic species (DPS Policy; 61 FR 4722). Under the DPS Policy, we consider the following when identifying a DPS: (1) The discreteness of the population segment in relation to the remainder of the species or subspecies to which it belongs; and (2) the significance of the population segment to the species or subspecies to which it belongs.

Section 3 of the ESA further defines an endangered species as any species which is in danger of extinction throughout all or a significant portion of its range and a threatened species as one which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Thus, we interpret an “endangered species” to be one that is presently in danger of extinction. A “threatened species,” on the other hand, is not presently in danger of extinction, but is likely to become so in the foreseeable future. In other words, the primary statutory difference between a threatened and endangered species is the timing of when a species may be in danger of extinction, either presently (endangered) or in the foreseeable future (threatened).

Section 4(a)(1) of the ESA also requires us to determine whether any species is endangered or threatened as a result of any of the following five factors: The present or threatened destruction, modification, or curtailment of its habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; the inadequacy of existing regulatory mechanisms; or other natural or manmade factors affecting its continued existence (16 U.S.C. 1533(a)(1)(A)–(E)). Section 4(b)(1)(A) of the ESA requires us to make listing determinations based solely on the best scientific and commercial data available after conducting a review of the status of the species and after taking into account efforts being made by any state or foreign nation or political subdivision thereof to protect the species. In evaluating the efficacy of formalized domestic conservation efforts that have yet to be implemented or demonstrate effectiveness, we rely on the Services’ joint Policy on Evaluation of Conservation Efforts When Making Listing Decisions (PECE; 68 FR 15100; March 28, 2003).

Status Review

As part of our review of the Petitioner’s request to delineate a NC summer-run steelhead DPS and list it as endangered under the ESA, we formed an expert panel (Panel) consisting of scientists from NMFS Southwest Fisheries Science Center (SWFSC) and Northwest Fisheries Science Center (NWFSC). We asked the Panel to provide: (1) an analysis and review of the petitioners’ claim that NC summer-run steelhead should be considered a separate DPS; and, if so, (2) a description of the demographic risks (*i.e.* abundance, productivity, spatial distribution and diversity) of any new DPSs identified. The first task was for the Panel to compile the best available scientific and commercial information relevant to evaluating the DPS structure of summer-run steelhead in northern California, including information presented by the petitioners. Specifically the NMFS West Coast Region (WCR) requested the Panel address the criteria in the

DPS Policy (61 FR 4722; February 7, 1996). Completion of the second task depended on the Panel's finding and the WCR's concurrence with their finding in the first task. If the Panel concluded that summer-run steelhead should be considered a separate DPS, and the WCR concurred, the Panel would complete the second task and submit their report on both tasks to the WCR. If the Panel concluded, and WCR concurred, that there should not be a change in the current DPS structure (*i.e.*, the summer-run steelhead are part of the NC steelhead DPS), the Panel would finalize their DPS structure findings and submit a report to the WCR. Under this second scenario, review of the viability of the NC steelhead DPS would be assessed in 2020 as part of the coast-wide five-year assessment.

In order to complete their DPS analysis, the Panel considered a variety of scientific information from the literature, unpublished documents, and direct communications with researchers working on the genetics of steelhead, as well as technical information submitted to NMFS. Information that was not previously peer-reviewed was formally reviewed by the Panel. Only the best-available science was considered further. The Panel evaluated all factors highlighted by the petitioners as well as additional factors that may contribute to our understanding of the evolutionary significance of run-timing in steelhead.

Following an evaluation of the two DPS criteria, the Panel arrived at a final conclusion regarding the DPS configuration using a voting method. Each of the four Panel members were given 10 votes to apportion between the two DPS configurations: (1) summer-run and winter-run steelhead should remain together in a single NC steelhead DPS; or (2) summer-run and winter-run steelhead in Northern California should be separated into two DPSs.

The Panel's draft report was subjected to independent peer review as required by the Office of Management and Budget (OMB) Final Information Quality Bulletin for Peer Review

(M– 05–03; December 16, 2004). The draft report was peer reviewed by an independent specialist selected from the academic and scientific community, with expertise in the genetic diversity of salmonids, as well as biology, conservation, and management. The peer reviewer was asked to evaluate the adequacy, appropriateness, and application of data used in the report. All peer reviewer comments were addressed prior to dissemination and finalization of the draft report and publication of this finding.

We subsequently reviewed the report, its cited references, and peer review comments, and believe the report, upon which this 12-month finding is based, provides the best available scientific and commercial information on the NC steelhead DPS. Much of the information discussed below is attributable to the report. In making the 12-month finding, we have applied the statutory provisions of the ESA; this includes an evaluation of the application of the factors set forth in section 4(a)(1)(A)–(E); our regulations regarding listing determinations (50 CFR part 424); and the DPS Policy (61 FR 4722; February 7, 1996).

Northern California Steelhead

On June 7, 2000, using the Policy on Applying the Definition of Species under the Endangered Species Act to Pacific Salmon (56 FR 58612; November 20, 1991) (Evolutionarily Significant Unit (ESU) Policy), NMFS listed the NC steelhead ESU as a threatened species (65 FR 36074). In the final listing determination, we concluded that in certain situations the ESU consisted of both anadromous and resident life forms of *O. mykiss*. We listed the anadromous portion of the ESU, which was under our jurisdiction. A court ruling in 2001 (*Alsea Valley Alliance v. Evans*, 161 F. Supp. 2d 1154 (D. Or. 2001)) determined that listing only a subset of a species or ESU/DPS, such as the anadromous portion of *O. mykiss*, was not allowed under the ESA. Because of this court ruling, NMFS conducted updated status reviews for all West Coast

steelhead ESUs that took into account those non-anadromous individuals below dams and other major migration barriers that were considered to be part of the steelhead ESUs (Good *et al.*, 2005). Subsequently, NMFS decided that the joint USFWS-NMFS DPS Policy was more appropriate for steelhead listing decisions than the ESU Policy, which was specifically designed for Pacific salmon. Using the DPS Policy, NMFS redefined the NC steelhead ESU as a steelhead-only DPS and reaffirmed that the NC steelhead DPS was a threatened species under the ESA (71 FR 834; January 5, 2006). The DPS includes both summer-run and winter-run steelhead. Since 2006, NMFS has conducted two status reviews (76 FR 50447; August 15, 2011 and 81 FR 33468; May 26, 2016) to evaluate whether the listing classification of NC steelhead remains accurate or should be changed. In both instances, after reviewing the best available scientific and commercial data, we concluded that no change in ESA-listing status for NC steelhead was warranted.

The NC steelhead DPS extends from Redwood Creek (Humboldt County) in the north, southward to, but not including, the Russian River. Within this region, the Eel River is the largest watershed, with numerous tributaries that contain significant spawning habitat for steelhead. Importantly, the DPS contains populations of both the more widespread winter-run life history type and scattered populations with the summer-run life history type, the largest of which is in the Middle Fork of the Eel River. The timing of river entry varies considerably among populations and run-types, both across the species range and within California (Busby *et al.* 1996). For California populations, summer-run steelhead typically enter freshwater in the spring or early summer (approximately March through June or July); however, these fish do not spawn until the following fall, winter, or spring. In contrast, winter-run steelhead enter freshwater at any

time from the late summer through the following spring, and spawn sometime during that same period (Shapovalov and Taft 1954; Puckett 1975; Busby *et al.* 1996).

Extant and historical summer- and winter-run steelhead populations in the Northern California DPS were identified by Bjorkstedt *et al.* (2005). Within the NC steelhead DPS area, winter-run are widely distributed across the landscape, but summer-run steelhead have very specific habitat requirements for parts of their life history, primarily the need for access to large pools with cool water in which they remain during the summer holding period (Nakamoto 1994; Nielsen *et al.* 1994). Puckett (1975) identified potential natural migrational barriers in the Middle Fork Eel River and Van Duzen River that provided some degree of separation between summer-run and winter-run steelhead spawning habitat, and recommended against removing migration barriers because it would likely result in increased mixing of the two run types. In the Mad River, a natural barrier apparently separating summer- and winter-run steelhead was identified by Knutson (1975) near Bug Creek. Roelofs (1983) suggested that summer-run spawning habitat is often characterized by limited accessibility, “ruggedness,” and intermittent flow. Thus, a combination of factors influencing river geomorphology and hydrology (*e.g.*, precipitation, stream gradient, geology, *etc.*) likely limit the distribution of summer-run steelhead, but may be highly variable among years such that complete reproductive isolation is unlikely even in the presence of a strongly flow-dependent migration barrier.

In the most recent five-year status review (NMFS 2016a; Williams *et al.* 2016), data on summer-run steelhead populations were available for Redwood Creek, Mad River, Van Duzen River, Middle Fork Eel River, and Mattole River. Additional potential populations for which little information was available included Larabee Creek, North Fork Eel River, and South Fork Eel River (Williams *et al.* 2016). Although both life-history types were likely to have been

negatively impacted by the recent drought in California, Williams *et al.* (2016) concluded that there was “no strong evidence to indicate conditions for winter-run populations in the DPS have worsened appreciably since the last status review (Williams *et al.* 2011).” However, they also noted that “Summer-run populations continue to be of significant concern. The Middle Fork Eel River population has remained remarkably stable for nearly five decades and is closer to its viability target than any other population in the DPS. Although the time series is short, the Van Duzen River and Mad River appear to be supporting populations numbering in the low hundreds. However, the Redwood Creek and Mattole River populations appear small, and little is known about other populations including various tributaries of the Eel River (*i.e.*, Larabee Creek, North Fork Eel, and South Fork Eel)” (Williams *et al.* 2016). Furthermore, Spence *et al.* (2008) defined representation and redundancy criteria to specifically account for persistence of major life-history types in assessing viability, and considered it “highly likely that, at a minimum, the representation and redundancy criteria are not being met for summer-run steelhead.”

Distinct Population Segment Determination

The Petitioner requested we delineate and list a NC summer-run steelhead DPS. As described above, the ESA’s definition of “species” includes “any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.” The DPS Policy requires the consideration of two elements when deciding whether a population is a DPS: (1) The discreteness of the population segment in relation to the remainder of the species to which it belongs; and (2) the significance of the population segment to the species to which it belongs.

A population segment of a vertebrate species may be considered discrete if it satisfies either one of the following conditions: (1) it is markedly separated from other populations of the

same taxon as a consequence of physical, physiological, ecological, or behavioral factors (and quantitative measures of genetic or morphological discontinuity may provide evidence of this separation); or (2) it is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the ESA. If a population segment is found to be discrete under one or both of the above conditions, its biological and ecological significance to the taxon to which it belongs is evaluated. Factors that can be considered in evaluating significance may include, but are not limited to: (1) Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon; (2) evidence that the loss of the discrete population segment would result in a significant gap in the range of a taxon; (3) evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range; or (4) evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.

Considerations for Criterion 1: Discreteness of the Population Segment

We considered whether NC summer-run steelhead are markedly separated from other populations of NC steelhead as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity were also considered. Northern California summer-run and winter-run steelhead are physically distinguishable only for a short, albeit important, part of their life-cycle, *i.e.*, during adult freshwater migration following return from the ocean and summer holding in freshwater. Adult summer-run steelhead enter freshwater between April and October, arriving in sexually immature condition and holding in deep, cold pools for as long as six-eight months before

moving into natal streams to spawn. In contrast, adult winter-run steelhead enter freshwater and migrate into natal streams between December and April, arriving in reproductive condition and spawning shortly thereafter. No consistent differences have been documented over the rest of their life history, including during the juvenile rearing, smolting, and sub-adult marine phases. Furthermore, while the redds and juveniles of the summer-run and winter-run steelhead may be somewhat spatially and/or temporally partitioned, the extent of this partitioning is highly variable among specific spawning tributaries as well as among years. The degree of this separation is dependent on changes in geomorphology, rainfall patterns, temperatures, and other climate variables, leading to incomplete and fluctuating separation at all stages of their life-cycle, as well as mating between life-history types when conditions limit their separation. Importantly, the high variability in the natural hydrograph of the Middle Fork Eel River and other coastal rivers that support Northern California summer-run steelhead is unlike the hydrographs in the snow melt-driven streams of the interior Columbia or Sacramento rivers, which may separate early- and late-migrating adults in a more predictable manner. This suggests that there will be a larger amount of variation among years in the degree to which a particular natural flow barrier temporally separates migrating adult steelhead in coastal watersheds.

The Petitioner presented new genetic evidence to suggest that the summer-run steelhead populations may qualify as a separate DPS from the winter-run populations. The Petitioner contends that the findings from recently published articles on the evolutionary basis of premature migration in Pacific salmon (Prince *et al.* 2017; Thompson *et al.* 2018) indicate that summer-run steelhead in the NC steelhead DPS should be considered a separate DPS. After careful consideration of the new evidence presented, and the best available genetic data, the Panel

concluded that summer-run and winter-run steelhead should remain together in a single Northern California steelhead DPS.

Hess *et al.* (2016), Prince *et al.* (2017) and Thompson *et al.* (2018) have studied the relationship between genetic material from a portion of the genome that includes the Greb1L gene (otherwise referred to as the Greb1L region of the genome) and run-timing in Chinook salmon and steelhead. The authors characterized the Greb1L region as two alleles (different forms) and three genotypes (different combinations of the alleles): individuals with two early run-timing alleles (early run homozygotes), individuals with two late run-timing alleles (late run homozygotes), and individuals with one allele for the early and one for the late run-timing (heterozygotes).

To understand whether variation in the Greb1L-region is a useful basis to support separation of summer-run and winter-run NC steelhead into two DPSs, we must first understand the distribution of individuals present in this geographic area representing different genotypic categories under consideration. Data collected by the SWFSC clearly show that many *O. mykiss* collections in California contain individuals with all three Greb1L-region genotypes present at a given place and time (Pearse *et al.* 2019). Furthermore, Greb1L-region variation is distributed broadly among populations, including the widespread occurrence of heterozygotes and the presence of both summer and winter homozygotes in many populations without documented expression of the summer run-timing. This demonstrates that this genetic variation is not uniquely partitioned into summer-run and winter-run steelhead DPSs, but is broadly distributed across a range of interconnected populations with variable phenotypes (observable characteristics). This conclusion is further supported within the NC steelhead DPS by analyses

provided as part of a public comment, showing the distribution of Greb1L-region variants throughout the Eel River system (S. Kannry, public comment).

Notably, Prince *et al.* (2017) did not observe the overlapping distribution of the Greb1L-region genotypes because they intentionally selected sample locations to represent the most divergent examples of these life-history types, including the summer-run samples from the Middle Fork Eel River and winter-run from the upper mainstem Eel River (Van Arsdale Fisheries Station). Prince *et al.* (2017) intentionally excluded samples from locations with less clearly defined summer-run or winter-run phenotypes because they represented intermediate phenotypes (*e.g.*, “fall-run” steelhead in the South Fork of the Trinity River). As a result, the Prince *et al.* (2017) data were not informative with respect to questions involving the temporal or geographic distribution of genetic variation in the Greb1L region, the relative frequency, dominance, or relative fitness of Greb1L-region genotypes in different locations, or the extent of gene flow between summer-run and winter-run steelhead.

In addition to the above examples, data from the Van Arsdale Fisheries Station indicates considerable overlap in the return timing of the Greb1L-region genotypes. The data show a nearly complete overlap in the return timing of individuals with the heterozygous and winter-run Greb1L-region genotypes. The data also document that some individuals with the homozygous summer-run genotypes were apparently migrating during the typical winter-run migration period (Pearse *et al.* 2019). Furthermore, this information indicates that matings between parents of with alternate Greb1L-region genotypes must occur, resulting in full-sibling families with a mix of Greb1L-region genotypes.

Thus, designation of separate summer-run and winter-run DPSs would both ignore the contribution of Greb1L-heterozygous individuals to these populations and potentially create

situations in which full-siblings of these matings would be divided into different species under the ESA. More simply, ignoring the contribution of Greb1L-heterozygous individuals could create a situation in which a single redd would produce fish assigned to different DPSs.

While our understanding of the specific genetic basis of run-timing is improved by the data presented in Prince *et al.* (2017), these new genetic data do not substantially change our understanding of the biology of summer-run and winter-run steelhead, as run timing has been recognized as a proxy for the underlying genetic variation (Dizon *et al.* 1992; Waples 2006). It was understood that there was a genetic basis for these traits long before biologists could say exactly what that basis was (Clemento 2006; Pearse 2016). In addition, it is likely that there are additional genes that contribute to run timing expression (Abadía-Cardoso *et al.* 2013), and that different parts of the species' genetic material contain adaptive genetic variation associated with other, unknown, traits important to local adaptation within the NC steelhead DPS. Thus, despite the finding that variation in the Greb1L region is strongly associated with run-timing in steelhead, our understanding of the evolutionary dynamics of this and other genetic variation is not fundamentally altered by this knowledge. The available data on genetic variation continue to support a model in which summer-run steelhead evolved from existing genetic variation, in populations dominated by winter-run steelhead, where and when the ecological conditions capable of supporting the summer-run life history exist (Arciniega *et al.* 2016).

Overall, while summer-run and winter-run steelhead are nominally recognizable as distinct life-history types, they occupy dynamic and partially overlapping habitats incompletely separated by waterfalls, dams, or other barriers to migration. It is also clear that there is variable but active and ongoing gene flow between these life-history types over ecological and evolutionary timescales. The lack of physical barriers separating summer-run and winter-run

within the range of the NC steelhead DPS and the fact that they are indistinguishable for much of their life-cycle further suggest that they cannot be managed separately, just as all juvenile *O. mykiss* below barriers to anadromy are de facto considered to be steelhead due to their “similarity of appearance” (Hey *et al.* 2005; NMFS 2006). Based on all of the above information, we conclude that the summer-run population of steelhead is not discrete from the winter-run population in the NC steelhead DPS. Thus, splitting these summer-run and winter-run groups would create a similar situation to the one that was rejected by the Alsea decision (*Alsea Valley Alliance v. Evans*, No. 99-6265-HO, Sept. 10, 2001), which ruled against listing below the species level under the ESA. This interpretation is also consistent with that of an earlier NMFS review of a petition to list summer steelhead in Deer Creek, Washington, that concluded that they should not be considered a separate species under the ESA (59 FR 59981; November 21, 1994).

Considerations for Criterion 2: Significance of the Population Segment

Although the Panel found, and we concurred, that NC summer-run steelhead do not qualify as a “discrete” population, the Panel elected to examine the second DPS criterion.

The success of the species *O. mykiss* both in its native range and globally is due at least in part to the resilience it gets from being able to express a diverse array of life-history strategies. These strategies can include adult steelhead run-timing variation and others such as variation in juvenile migratory behavior (Hayes *et al.* 2011; Moore *et al.* 2014), variation in adult age-at-return, within-season variance in spawn timing (Abadía -Cardoso *et al.* 2013), variation in the half-pounder life history (steelhead that return from the ocean after only two to four months of saltwater residence, are generally sexually immature, and migrate back to saltwater the following spring: Roelofs 1983; Hayes *et al.* 2016), and variation in non-anadromous life histories

(freshwater adfluvial and resident life histories; Hayes *et al.* 2011). This diversity allows different individuals in the species to maximize their fitness by taking advantage of the habitat conditions present in a particular place and time. Given the importance of inter-annual variation in this geographic area and its effect on the ability of streams in the NC steelhead DPS geographic range to support salmonids (Power *et al.* 2015), this diversity clearly adds resilience to the NC steelhead DPS and supports its continued survival. Life-history variants that do best in one year may not have the highest fitness in a different year, but collectively they can maintain a viable population size and high genetic diversity (*i.e.*, the portfolio effect: Schindler *et al.* 2015; Moore *et al.* 2014; Brennan *et al.* 2019). The contribution of the many diverse life-history forms is critical to the resilience of *O. mykiss*.

With respect to the significance of the summer-run steelhead to the Northern California steelhead DPS, this life-history diversity is already recognized by its explicit inclusion in the recovery and viability documents developed for salmon and steelhead in this area (Spence *et al.* 2008; NMFS 2016b; Williams *et al.* 2016). The recovery plans were based on viability criteria, which in turn were based on the viable salmonid population (VSP) concept (McElhany *et al.* 2000). The VSP concept recognizes that life-history diversity is: (1) a key parameter; and (2) hierarchical in nature (from populations on up to species). These summer-run populations have been explicitly identified as having viability criteria based on their shorter-term demographic independence and the need to maintain the appropriate building blocks for recovery (*i.e.*, population units capable of persisting in relative isolation of other units). Having summer-run populations as substrata within diversity strata (and essential for viability) provides the umbrella under which longer-term evolutionary processes are maintained. However, it is also important to keep in mind that all of the other life history variations described above in the species *O. mykiss*

are likely to be of equal if not greater significance to the resilience of the species as the variation in adult migration timing associated with the Greb1L region. Thus, there is no clear basis for deciding that adult migratory timing variation should be prioritized more highly than the other, similarly important and diverse characteristics of this highly variable species, or that separating any of these life history variations into separate management units would provide a benefit given their interdependent and dynamic relationships.

NC Steelhead DPS Conclusions

We conclude that summer-run and winter-run steelhead should remain together in a single Northern California steelhead DPS. The best available data indicate that summer-run steelhead cannot be listed as a separate DPS from winter-run steelhead, as the two groups maintain an ongoing and interconnected genetic legacy. Retention of both life-history types in a single DPS, however, does not indicate a lack of recognition that summer-run steelhead are an important component of the DPS, or suggest that measures should not be taken to protect and improve habitat, including access to upstream habitats through dam removals, fish passage programs, reduced water diversions, *etc.* Rather, it is an acknowledgment that the run-types are fundamental parts of the listed unit as a whole and should not be separated from each other. As noted above, this is explicitly addressed in the NMFS status reviews and recovery plans through recognition of the need to focus protection on and consider populations of both of these run-types in assessing recovery status (NMFS 2016a, NMFS 2016b; Spence *et al.* 2008).

Final Determination

Section 4(b)(1) of the ESA requires that NMFS make listing determinations based solely on the best scientific and commercial data available after conducting a review of the status of the species and taking into account those efforts, if any, being made by any state or foreign nation, or

political subdivisions thereof, to protect and conserve the species. We have independently reviewed the best available scientific and commercial information, including the information contained in the petition, public comments submitted on the 90-day finding (84 FR 16632; April 22, 2019), and the DPS configuration review report, and other published and unpublished information, and we have consulted with species experts and individuals familiar with the NC steelhead DPS.

Our determination set forth here is based on a synthesis and integration of the foregoing information. Based on our consideration of the best available scientific and commercial information, as summarized here and in the status review report, we conclude that NC summer-run steelhead do not constitute a DPS. Accordingly, NC summer-run steelhead does not meet the definition of a species, and thus, NC summer-run steelhead does not warrant listing as a separate DPS.

This is a final action, and, therefore, we are not soliciting public comments.

References

A complete list of all references cited herein is available upon request (see **FOR FURTHER INFORMATION CONTACT**).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: January 30, 2020.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs,
National Marine Fisheries Service.

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